

NOTES ON THE ANATOMY OF STROBILOPS LABYRINTHICA (SAY).

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Several years ago, some examples of *Strobilops labyrinthica* (Say) were collected alive at Great Falls of the Potomac River, in Virginia, and advantage was taken of the opportunity to ascertain some points regarding the anatomy. Drawings and notes were made at the time of dissection but other activities have prevented their preparation for publication until now.

The small, ribbed, dome-shaped shells with internal lamellæ are common in the eastern part of the United States and their familiar forms need no special mention here. Say described the first species as *Helix labyrinthica*. (*Journ. Phila. Acad. Sci.*, I, 124, 1817.) Morse in 1864 (*Journ. Portland Soc. Nat. Hist.*, Vol. I. p. 26, 1864) created the genus *Strobila* for it; but this name, unfortunately, was preoccupied several times. Pilsbry (*Proc. Acad. Nat. Sci. Phila.* 1892, p. 403) renamed the group, *Strobilops* in 1892. (See also in this connection, Pilsbry, NAUT., VII, p. 56, 1892. NAUT. XXII, p. 78, 1908.) According to him the genus is represented by numerous species in the European Tertiary from the Eocene; also in America it is found from Maine to Venezuela, west to the Rocky Mountains and possibly it is found on the Galapagos Islands. Several species are found in Japan, Eastern Asia and the Philippines.

A cursory examination reveals the following names which have been applied to American material: *labyrinthica* (Say): *strebeli* (Crosse and Fischer): *virgo* (Pilsbry): *affinis* Pilsbry: *morsei* (Dall): *salvini* (Tristram): *hubbardi* (A. D. Brown): *vendreyesiana* (Gloyne): *texasiana* Pilsbry and Ferriss. There may be others.

The anatomy, Plate 2, figs. 10, 11, indicates that the genus is distinctly Pupillid in its relationships. The kidney, being parallel to the rectum, separated therefrom and leading directly to the mantle margin, places it in the superfamily or tribe, *Orthurethra* Pilsbry. Fundamental shell characters are sufficient to segregate the group as a distinct family, *Strobilopsidæ*. (*When*

STROBILOPS replaces STROBILA, then STROBILOPSIDÆ must replace STROBILIDÆ according to the rules of priority and synonymy.)

The following description applies only to *S. labyrinthica*. How closely the other species come to this, and the amount of variation in the group, can only be ascertained by more extended anatomical investigation.

Animal without pedal grooves or caudal mucous pore but having a network of incised lines on the surface of the skin. The meshes of this are quite large. Tentacles and eyestalks, normal. Genital opening just back of the right eyestalk. Fore part of the body, black: tail region light gray and sole of foot white.

Kidney, long and slender, very little larger than the duct, the ureter, which leads directly therefrom to the mantle margin. The duct is separated from the rectum by a distance equal to the diameter of the latter. It appears to discharge immediately above the breathing pore.

The genitalia are characterized by the excessively long flagellum on the penis. One branch of the bifurcated retractor muscle is attached at the junction of the penis and flagellum: the other is attached to a bend of the vas deferens a short distance above its union with the penis. The distal end is attached to the right optic retractor muscle. The vas deferens is considerably swollen in the section nearest the penis. Here it is almost as large as the latter organ. It gradually becomes smaller however and discharges high up on the oviduct. The appendix is swollen in its distal end to the diameter of the penis and it has there an abrupt flexure. Whether this is due to the retraction of the organs and therefore accidental or whether it is natural, has not been ascertained. The penis and vagina unite at the point of exit. There is no appreciable atrium or cloaca.

The vagina is a thin-walled, slightly pouched organ, smaller in diameter at its junction with the penis than elsewhere. The upper end corresponds to what is usually called the oviduct in land snails, but there is not a point of demarcation between the two in this species. The upper end is folded into a series of lamellar pouches, all of which fit close together like plates. The walls in this region appear to contain some glandular tissue.

The albumen gland is large and finely granulose. Its separation from the vagina-oviduct is not well marked. The hermaphroditic duct empties at the junction of the two. This duct is greatly convoluted and swollen in its lower portion. Upwards, it is thin and slender. The hermaphroditic gland is composed of two portions, grape-like granules embedded in the coarsely granular liver. The spermatheca is pear-shaped and empties into the vagina a considerable distance below the termination of the vas deferens.

The digestive tract is composed of the usual elements; buccal mass, salivary glands, oesophagus, stomach and intestine. Two features seem to be noteworthy. The oesophagus is not a slender duct as usual, but the walls are "knotty" or slightly convoluted throughout. Also on the stomach there appears to be an accessory gland, closely appressed to the walls of that organ. The salivary glands are united into one but they seem to discharge into the buccal mass at the usual two points.

The jaw and radula were not examined but the description of these organs has been repeated so many times that it does not need to be quoted. Binney in the Manual of American Land Shells, p. 263, 1885, considers them in detail.

SOME PERUVIAN CLAUSILIIDÆ.

BY HENRY A. PILSBRY.

The species of *Nenia* noticed below were collected in the valley of the Huallaga River, eastern Peru, by Dr. Bela Hubbard, in the course of geological exploration in that region. I owe the privilege of studying them to Dr. Bryant Walker.

NENIA BELAHUBBARDI n. sp. Pl. 2, figs. 1, 2, 15-17.

The shell is fusiform, rather slender, widest at the penult whorl, attenuate above; quite thin; light brown variegated with white, which appears on the striae only, in many small, irregular patches. Sculpture of fine, close, oblique striae, 12 or 13 in 1 mm. on the face of the last whorl. They are continuous, very slightly irregular or waved, but appearing more so from